



## Ultra-small 22.5 mΩ 2.5 A Integrated Power Switch with Reverse Blocking

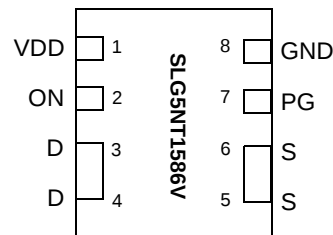
### General Description

The SLG5NT1586V is a 22.5 mΩ 2.5 A single-channel load switch that is able to switch 1 to 5 V power rails. The product is packaged in an ultra-small 1.0 x 1.6 mm package.

### Features

- 1.0 x 1.6 x 0.55 mm STDFN 8L package (2 fused pins for drain and 2 fused pins for source)
- Logic level ON pin capable of supporting 0.85 V CMOS Logic
- 22.5 mΩ RDS<sub>ON</sub> while supporting 2.5 A
- Power Good Output
- Pb-Free / Halogen-Free / RoHS compliant
- Operating Temperature: -40 °C to 85°C
- Operating Voltage: 1.5 V to 5.5 V

### Pin Configuration

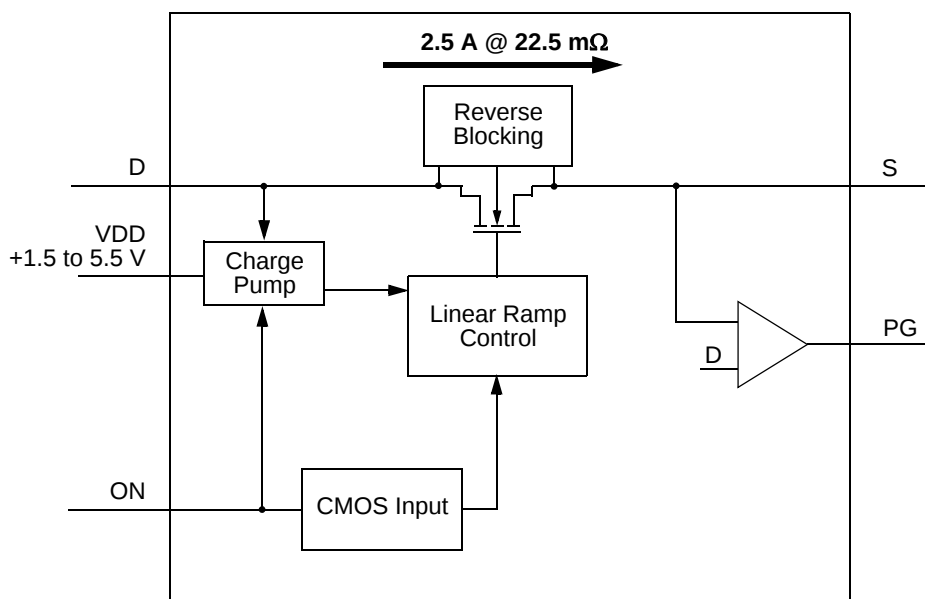


**8-pin STDFN  
(Top View)**

### Applications

- Notebook Power Rail Switching
- Tablet Power Rail Switching
- Smartphone Power Rail Switching

### Block Diagram





### Pin Description

| Pin # | Pin Name | Type   | Pin Description                                                                                |
|-------|----------|--------|------------------------------------------------------------------------------------------------|
| 1     | VDD      | PWR    | VDD power for load switch control (1.5 V to 5.5 V)                                             |
| 2     | ON       | Input  | Turns MOSFET ON (4 M $\Omega$ pull down resistor)<br>CMOS input with VIL < 0.3 V, VIH > 0.85 V |
| 3     | D        | MOSFET | Drain of Power MOSFET (fused with pin 4)                                                       |
| 4     | D        | MOSFET | Drain of Power MOSFET (fused with pin 3)                                                       |
| 5     | S        | MOSFET | Source of Power MOSFET (fused with pin 6)                                                      |
| 6     | S        | MOSFET | Source of Power MOSFET (fused with pin 5)                                                      |
| 7     | PG       | Output | Power Good Output. Active High. Pin drives HIGH when V <sub>OUT</sub> > 95% V <sub>IN</sub>    |
| 8     | GND      | GND    | Ground                                                                                         |

### Ordering Information

| Part Number   | Type                     | Production Flow             |
|---------------|--------------------------|-----------------------------|
| SLG5NT1586V   | STDFN 8L                 | Industrial, -40 °C to 85 °C |
| SLG5NT1586VTR | STDFN 8L (Tape and Reel) | Industrial, -40 °C to 85 °C |



## Absolute Maximum Ratings

| Parameter                | Description                       | Conditions                               | Min. | Typ. | Max. | Unit |
|--------------------------|-----------------------------------|------------------------------------------|------|------|------|------|
| V <sub>DD</sub>          | Power Supply                      |                                          | --   | --   | 7    | V    |
| T <sub>S</sub>           | Storage Temperature               |                                          | -65  | --   | 150  | °C   |
| ESD <sub>HBM</sub>       | ESD Protection                    | Human Body Model                         | 2000 | --   | --   | V    |
| W <sub>DIS</sub>         | Package Power Dissipation         |                                          | --   | --   | 0.4  | W    |
| MOSFET IDS <sub>PK</sub> | Peak Current from Drain to Source | For no more than 1 ms with 1% duty cycle | --   | --   | 3.5  | A    |

Note: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

## Electrical Characteristics

T<sub>A</sub> = -40 °C to 85 °C (unless otherwise stated)

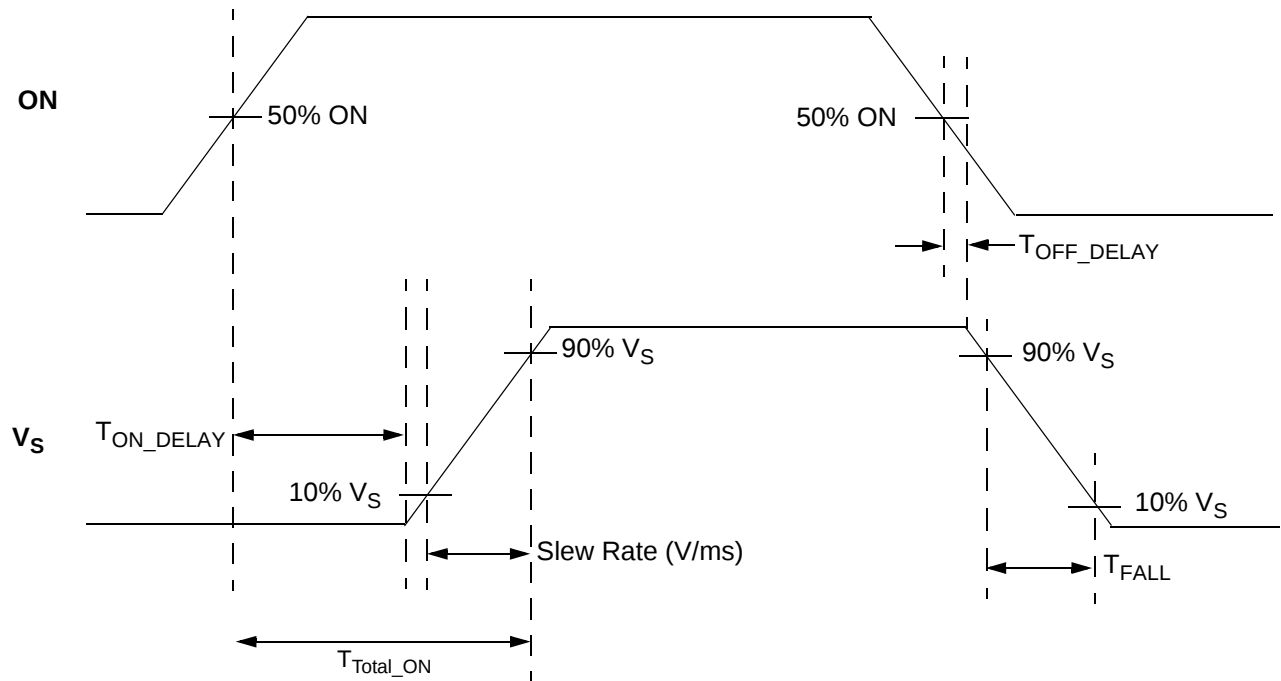
| Parameter              | Description                            | Conditions                                                                                 | Min.                 | Typ. | Max.            | Unit |
|------------------------|----------------------------------------|--------------------------------------------------------------------------------------------|----------------------|------|-----------------|------|
| V <sub>DD</sub>        | Power Supply Voltage                   | -40 °C to 85 °C                                                                            | 1.5                  | --   | 5.5             | V    |
| I <sub>DD</sub>        | Power Supply Current (PIN 1)           | when OFF                                                                                   | --                   | --   | 1               | μA   |
|                        |                                        | when ON, No load                                                                           | --                   | 14   | 30              | μA   |
| RDS <sub>ON</sub>      | Static Drain to Source ON Resistance   | T <sub>A</sub> 25°C @ 100 mA                                                               | --                   | 22.5 | 25              | mΩ   |
|                        |                                        | T <sub>A</sub> 70°C @ 100 mA                                                               | --                   | 25.6 | 30              | mΩ   |
|                        |                                        | T <sub>A</sub> 85°C @ 100 mA                                                               | --                   | 25.6 | 30              | mΩ   |
| IDS                    | Operating Current                      | V <sub>D</sub> = 1.0 V to 5.5 V                                                            | --                   | --   | 2.5             | A    |
| ISD <sub>LKG</sub>     | ISD Leakage (Reverse Blocking Enabled) | V <sub>S</sub> = 1.0 V to 5.5 V, V <sub>D</sub> = 0 V, V <sub>DD</sub> = 0 V, @ 25°C       | --                   | 0.29 | 0.50            | μA   |
|                        |                                        | V <sub>S</sub> = 1.0 V to 5.5 V, V <sub>D</sub> = 0 V, V <sub>DD</sub> = 0 V, @ 85°C       | --                   | 0.85 | 1.30            | μA   |
|                        |                                        | V <sub>S</sub> = 1.0 V to 5.5 V, V <sub>D</sub> = 0 V, V <sub>DD</sub> = 0 V, @ -40°C      | --                   | 3.35 | 5.00            | μA   |
| V <sub>D</sub>         | Drain Voltage                          |                                                                                            | 1.0                  | --   | V <sub>DD</sub> | V    |
| T <sub>ON_Delay</sub>  | ON pin Delay Time                      | 50% ON to Ramp Begin                                                                       | 0                    | 300  | 500             | μs   |
| T <sub>Total_ON</sub>  | Total Turn On Time                     | Example: V <sub>DD</sub> = V <sub>D</sub> = 5 V, Source_Cap = 10 μF, R <sub>L</sub> = 20 Ω | 2.1                  | 2.6  | 3.1             | ms   |
| T <sub>SLEW_RATE</sub> | Slew Rate                              | Example: V <sub>DD</sub> = V <sub>D</sub> = 5 V, Source_Cap = 10 μF, R <sub>L</sub> = 20 Ω | 1.4                  | 1.95 | 2.2             | V/ms |
| CAP <sub>SOURCE</sub>  | Source Cap                             | Source to GND                                                                              | --                   | --   | 500             | μF   |
| ON_V <sub>IH</sub>     | High Input Voltage on ON pin           |                                                                                            | 0.85                 | --   | V <sub>DD</sub> | V    |
| ON_V <sub>IL</sub>     | Low Input Voltage on ON pin            |                                                                                            | -0.3                 | 0    | 0.3             | V    |
| V <sub>OL</sub>        | High Output Voltage on PG pin          | V <sub>DD</sub> = 5 V, I <sub>OL</sub> = -0.1 mA                                           | --                   | --   | 0.4             | V    |
| V <sub>OH</sub>        | High Output Voltage on PG pin          | V <sub>DD</sub> = 5 V, I <sub>OH</sub> = 0.1 mA                                            | V <sub>DD</sub> -0.4 | --   | V <sub>DD</sub> | V    |
| THERM <sub>ON</sub>    | Thermal shutoff turn-on temperature    |                                                                                            | --                   | 125  | --              | °C   |
| THERM <sub>OFF</sub>   | Thermal shutoff turn-off temperature   |                                                                                            | --                   | 100  | --              | °C   |
| THERM <sub>TIME</sub>  | Thermal shutoff time                   |                                                                                            | --                   | --   | 1               | ms   |
| T <sub>OFF_Delay</sub> | OFF Delay Time                         | 50% ON to V <sub>S</sub> Fall, V <sub>DD</sub> = V <sub>D</sub> = 5 V                      | --                   | 8    | --              | μs   |
| PG <sub>TRIGGER</sub>  | Power Good Trigger Level               | V <sub>OUT</sub> % of V <sub>IN</sub>                                                      | --                   | 92   | --              | %    |

Notes:

1. Refer to table for configuration details.



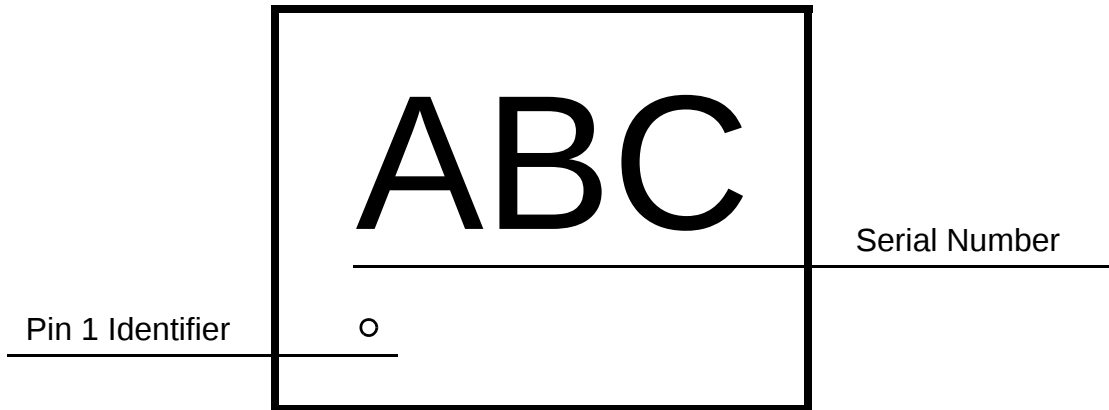
### $T_{Total\_ON}$ , $T_{ON\_Delay}$ and Slew Rate Measurement





---

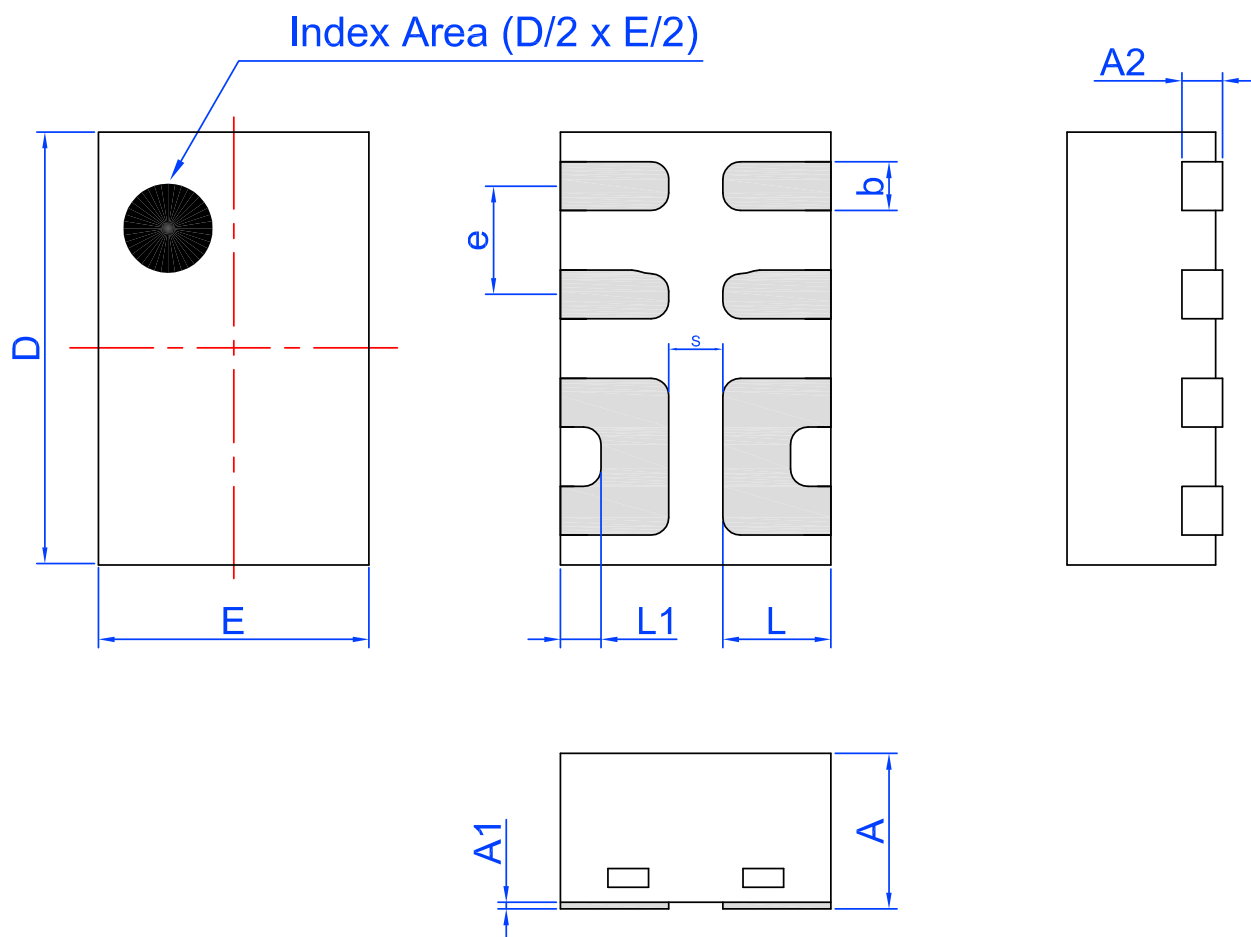
Package Top Marking System Definition





### Package Drawing and Dimensions

8 Lead STDFN Package 1.0 x 1.6 mm (Fused Lead)  
IC Net Weight: 0.0025 g



Unit: mm

| Symbol | Min      | Nom. | Max   | Symbol | Min     | Nom. | Max  |
|--------|----------|------|-------|--------|---------|------|------|
| A      | 0.50     | 0.55 | 0.60  | D      | 1.55    | 1.60 | 1.65 |
| A1     | 0.005    | -    | 0.060 | E      | 0.95    | 1.00 | 1.05 |
| A2     | 0.10     | 0.15 | 0.20  | L      | 0.35    | 0.40 | 0.45 |
| b      | 0.13     | 0.18 | 0.23  | L1     | 0.10    | 0.15 | 0.20 |
| e      | 0.40 BSC |      |       | S      | 0.2 REF |      |      |

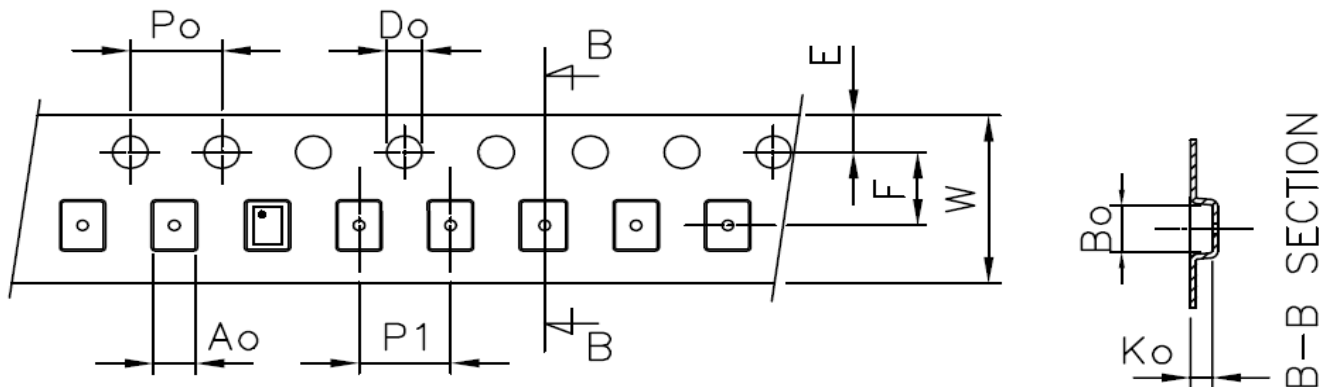


### Tape and Reel Specifications

| Package Type                            | # of Pins | Nominal Package Size [mm] | Max Units |         | Reel & Hub Size [mm] | Leader (min) |             | Trailer (min) |             | Tape Width [mm] | Part Pitch [mm] |
|-----------------------------------------|-----------|---------------------------|-----------|---------|----------------------|--------------|-------------|---------------|-------------|-----------------|-----------------|
|                                         |           |                           | per Reel  | per Box |                      | Pockets      | Length [mm] | Pockets       | Length [mm] |                 |                 |
| STDFN 8L<br>1x1.6mm<br>0.4P FC<br>Green | 8         | 1.0 x 1.6 x 0.55          | 3,000     | 3,000   | 178 / 60             | 100          | 400         | 100           | 400         | 8               | 4               |

### Carrier Tape Drawing and Dimensions

| Package Type                            | Pocket BTM Length | Pocket BTM Width | Pocket Depth | Index Hole Pitch | Pocket Pitch | Index Hole Diameter | Index Hole to Tape Edge | Index Hole to Pocket Center | Tape Width |
|-----------------------------------------|-------------------|------------------|--------------|------------------|--------------|---------------------|-------------------------|-----------------------------|------------|
|                                         | A0                | B0               | K0           | P0               | P1           | D0                  | E                       | F                           | W          |
| STDFN 8L<br>1x1.6mm<br>0.4P FC<br>Green | 1.12              | 1.72             | 0.7          | 4                | 4            | 1.55                | 1.75                    | 3.5                         | 8          |



### Recommended Reflow Soldering Profile

Please see IPC/JEDEC J-STD-020: latest revision for reflow profile based on package volume of 0.88 mm<sup>3</sup> (nominal). More information can be found at [www.jedec.org](http://www.jedec.org).



# SILEGO

## SLG5NT1586V

---

### Revision History

| Date       | Version | Change             |
|------------|---------|--------------------|
| 03/01/2016 | 1.00    | Production Release |

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9